NOTE XXXVI.

CARCINOLOGICAL STUDIES IN THE LEYDEN MUSEUM

BY

Dr. J. G. de MAN.

N°. 6. 1)
(Plates 7—10).

LIST OF SPECIES.

Xantho lividus *Lam.*
» Reynaudii *M. E.*
Eurycarcinus orientalis *A. M. E.*
Pilumnopeus crassimanus *A. M. E.*
Heteropanope tridentata *Maitland.*
Geotelphusa picta *v. Mart.*
» transversa *v. Mart.*
Geotelphusa loxophthalma, n. sp.
Sesarma Eydouxi *M. E.*
» recta *Randall.*
» angustipes *Dana.*
» elongata *A. M. E.*
» curaçaoensis, n. sp.
Caridina japonica, n. sp.
Hippolyte ponapensis *Ortmann.*

1. *Xantho lividus* Lam.

Xantho lividus, H. Milne Edwards, Histoire Nat. des Crustacés, T. I, p. 393.

The cephalothorax of this rare species that occurs on the shores of Mauritius, is rather much enlarged and its lateral margins are armed with four teeth behind the external orbital angles which are not at all prominent. The first tooth is the largest, has the form of a bluntly rounded lobe and projects far beyond the external orbital angles;

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1) See for N°. 1 and 2: Vol. III, p. 121 and p. 245; for N°. 3: Vol. V, p. 150; for N°. 4: Vol. XII, p. 49, and for N°. 5: Vol. XIII, p. 1.

the second is somewhat smaller, and the third and fourth are the smallest, much narrower, and therefore appear more dentiform. The ambulatory legs are densely provided with long hairs. I examined this species in the Museum of Paris.

2. *Xantho Reynaudii* M. E.

Xantho Reynaudii, Milne Edwards, l. c. T. I, p. 392.

I examined in Paris a specimen of this *Xantho*, which was collected in China. The cephalothorax is rather little enlarged and the front is narrow. The measurements are the following:

Greatest width of the cephalothorax (i. e. the distance between the last antero-lateral teeth).	$59^1/_2$	mm.
Length of the cephalothorax, the front included	44	»
Distance between the external orbital angles.	25	»
Breadth of the front	15	»

3. *Eurycarcinus orientalis* A. M. E.

Eurycarcinus orientalis, A. Milne Edwards, Descriptions de quelques espèces nouvelles de Crustacés brachyures, in: Annales Soc. Entomol. de France, T. VII, 1867, p. 277.

In my »Report on the Crustacea of the Mergui Archipelago" (Journal of the Linnean Society of London, Vol. XXII, 1888, p. 43), I have made the supposition that *Eurycarcinus integrifrons* de Man, of which the habitat is unknown, might prove to be identical with *Euryc. orientalis* A. M. E., a species from Bombay. An exact examination of the typical specimen in Paris taught me, however, that these two species are indeed distinct. The cephalothorax of *Euryc. orientalis* is comparatively somewhat more enlarged, as may be seen by comparing the dimensions of the two species. The front of *Euryc. orientalis* is not straight, as in *Euryc. integrifrons*, but presents a rather broad, triangular emargination in the middle.

In *Euryc. integrifrons* the two anterior lobes of the lateral margins of the cephalothorax have the same size, but in the Bombay species the second antero-lateral lobe is a little longer than the first.

The measurements of a male type-specimen of *Eurycarcinus orientalis* from Bombay are the following:

Breadth of the cephalothorax	$26^{2}/_{5}$	mm.
Length » » »	16	»
Distance between the external orbital angles .	$13^{1}/_{3}$	»

The cephalothorax of a male individual of *Eurycarcinus integrifrons* de Man, however, is 20 mm. broad and 14 mm. long (confer: Notes from the Leyden Museum, 1879, Vol. I, p. 56).

4. *Pilumnopeus crassimanus* A. M. E.

Pilumnopeus crassimanus, A. Milne Edwards, Descriptions de quelques espèces nouvelles de Crustacés brachyures, in: Annales Soc. Entom. de France, T. VII, 1867, p. 278.

It appears to me highly probable that this species is identical with *Heteropanope serratifrons* Kinahan (confer: de Man, in: Notes from the Leyden Museum, Vol. XII, 1890, p. 56; pl. 3, fig. 2). The typical specimen of *Pilumnopeus crassimanus* from Port Western, that I examined in Paris, presents the following measurements:

Greatest width of the cephalothorax. . . .	25	mm.
Length of the cephalothorax, without the frontal lobes	17	»
Length of the cephalothorax, with the frontal lobes	$17^{1}/_{2}$	»
Distance between the internal orbital angles.	$8^{1}/_{2}$	»
Length of the larger chela, fingers included.	$19^{1}/_{2}$	»
Length of the palm	12	»
Height of the palm near the articulation with the fingers	$11^{3}/_{4}$	»

I must remark that the number 25 (greatest width) is perhaps not quite exact and may be a little too high. The distance between the internal orbital angles is just half as long as the length of the cephalothorax, quite as in *Heterop. serratifrons*, and as regards the other proportions, both species likewise agree with one another.

5. *Heteropanope tridentata* Maitland.

(Fig. 1).

Pilumnus tridentatus, Maitland, Naamlijst van Nederlandsche Schaaldieren, in: Tijdschrift der Nederlandsche Dierkundige Vereeniging, Deel I, 1873, p. 232. — Hoek, Iets over *Pilumnus tridentatus* Maitland, in: Tijdschrift der Nederlandsche Dierkundige Vereeniging, Deel II, 1876, p. 243; pl. XIV, fig. 12—16.

Heteropanope tridentata, de Man, in: Zoolog. Jahrbücher von J. W. Spengel, Bd. IV, 1889, S. 422.

This interesting species, hitherto only known from Holland, was first distinguished and shortly described by Maitland. It is found in the Zuiderzee, not only on its shores, but also near the island of Urk, further in the IJ near Amsterdam and in the Hollandsch Diep. It occurs however not only in seawater, but also in brackish and even in fresh water. Maitland indeed observed these crabs in a freshwater ditch near Haarlem and Hoek found them in the river Amstel and even near the village of Uithoorn at a distance of five hours from Amsterdam and from the seashore. Some time ago Mr. Maitland was so kind as to procure me some specimens of this species, twelve males of somewhat different size and a young female without eggs: according to him the female individuals would be much less frequent than the males, but Dr. Hoek observed quite the contrary and I received from him an ova-bearing female, found near Urk in August 1890, at a depth of 14 feet.

This species now ought to be referred to the genus *Heteropanope*, as it was characterized by me in my »Report on the Crustacea of the Mergui Archipelago" (Journal of the Linnean Society of London, Vol. XXII, 1888, p. 52), and it appears most closely allied to *Heteropanope indica* de Man, that inhabits the Mergui Archipelago.

As regards indeed the general form of the cephalothorax, of the chelipedes and of the ambulatory legs, both species no doubt present a striking resemblance with one another and it is only by a close examination that the slight differences can be observed. As in the Mergui species, the cephalothorax is broadest at the third anterolateral teeth; the proportion of the width of the cephalothorax to the length is nearly quite the same in both species. The upper surface, rather depressed in *Heterop. indica*, appears to be slightly convex in the Dutch species and distinctly declivous towards the front and the lateral margins. The transverse groove, separating the cardiac region from the mesogastric area, is rather deep and the two grooves which border the latter anteriorly and converge towards the very slight frontal furrow, are also quite distinct, but the other interregional grooves are faintly marked. The posterior branchial regions are somewhat rugose and the anterior half of the upper surface is marked, like in *Heterop. indica*, with some transverse, minutely granulated, pubescent, elevated lines, five on each side, which, however, present a different arrangement in both species. The epigastric lobes, lying immediately behind the frontal margin, and each of which in the Mergui species bears a transverse line, appear smooth in *Heterop. tridentata*. In both species each protogastric lobe is marked with two transverse lines; in *Heterop. indica* these ridges are placed nearly in the same transverse line near one another, but in *Heterop. tridentata* they are placed behind one another, and the anterior is somewhat shorter than the posterior; in some individuals these two lines are divided into smaller ones. The mesogastric area presents on each side a transverse line, but in *Heterop. indica* this region is smooth. The fourth or last antero-lateral tooth is slightly carinate above; this short crest, running obliquely backwards and being likewise pubescent, is the fourth of the five elevated lines that are seen on each half of the upper surface of the cephalothorax. The fifth, finally, is the longest and proceeds almost transversely; it occurs between the fourth line and the posterior border of each protogastric lobe. In *Heterop. indica* before this fifth line, moreover a much shorter one is found near the third anterolateral tooth, but this shorter line is completely wanting in Maitland's species. The upper surface of the anterior half of the cephalothorax before and between the described transverse lines is quite smooth.

The front is a little less broad in this species in proportion to the width of the cephalothorax than in *Heterop. indica*, its breadth being not quite one third of the width of the carapace; it is nearly as prominent and presents the same form, but each lobe is somewhat less distinctly emarginate towards its external angle. Immediately behind the granulated margin of the front and parallel with it, a granulated crest occurs, likewise divided into two halves by a median triangular incision, so that the front may be described as bimarginate, which seems to be also the case in *Heterop. indica* according to my description. The orbits have quite the same form and the same fissures on their finely granulated margins as those of *Heterop. indica*, namely two on the outer half of the upper margin and one small triangular incision on the finely granulated inferior margin near the little prominent external orbital angles. The inner angle of the under margin projects, as in *Heterop. indica*, as a rather obtuse tooth a little beyond the inner angle of the upper margin.

The antero-lateral margins are armed with four prominent teeth, including the external orbital angles; these teeth present just the same form and the same proportions as those of *Heterop. indica*, so that the description of the latter is wholly applicable to Maitland's species. The inflected sides of the cephalothorax are finely granular and hairy, but are not provided with a tubercular eminence or tooth as in some other species of this genus. The short and quadrate basal joint of the external antennae reaches to the front. The epistome is smooth and the endostome distinctly ridged on each side. The abdomen of the male seems to be five-jointed, as the third, fourth and fifth segments are probably coalescent, but Hoek figures it (l. c.) as seven-jointed; the penultimate segment is distinctly broader than long. The sternum of the male is somewhat granulated on the anterior segment, near the abdomen, near the maxillipedes and near the basal joint of the chelipedes.

The chelipedes of the male are very unequal and in all the specimens before me the right is the larger. The upper margin seems to be unarmed at the distal end, but presents a strong, acute, somewhat curved tooth in the Mergui species. The under margin is obtusely rounded and the anterior somewhat hairy. The wrist is armed at the internal angle with a scarcely acute tooth and appears somewhat uneven and granular on the upper surface, especially that of the smaller chelipede. The hand of the larger chelipede (fig. 1^b) is exactly as long or scarcely shorter than the breadth of the cephalothorax. The palm is about once and a half as long as the fingers, measured horizontally and but little longer than high. As in *Heterop. indica*, the outer surface of the palm is rather convex and quite smooth; the upper margin, which in the Mergui species was described by me as obtuse, appears remarkably flattened in *Heterop. tridentata* and is separated from the outer surface of the palm by a more or less distinct longitudinal crest, running parallel with the inner border of the upper margin. In some individuals this flattened upper margin, sometimes even slightly concave, appears minutely granular, especially along its borders, when seen under a lens. The convex inner surface of the palm is equally smooth. The fingers, which have pointed tips and leave, when closed, a small hiatus between them, are distinctly compressed laterally, a character of which I made no mention in my description of *Heterop. indica.* The arcuate mobile finger appears slightly concave in a longitudinal direction on its outer as well as on its inner surface and is smooth everywhere except at the base of the upper margin that appears finely granular when seen under a lens; the inner margin is armed with seven or eight small teeth of somewhat unequal size. The index or immobile finger is also faintly longitudinally furrowed on its outer surface and its inner margin is also provided with several (seven or eight) teeth of unequal size.

The fingers of the smaller hand of the male (fig. 1c) are comparatively a little longer than those of the larger chela, being but little shorter than the palm, and they leave no hiatus between them when closed. For the rest this hand presents quite the same characters as the other, the outer surface of the palm being perfectly smooth and glabrous, the upper margin being flattened or even slightly concave longitudinally, separated from the outer surface by a longitudinal, more or less distinct crest or edge and appearing more or less distinctly granular when examined under a lens. The fingers are laterally compressed and faintly grooved longitudinally on their outer surface; the mobile finger is finely granulated nearly along its whole upper margin and armed with six or seven small teeth; the lower finger, finally, has ten or twelve small teeth. The smaller hand of *Heterop. indica*, however, was described by me as being covered with distinct granules and with sparsely distributed hairs on the outer surface of the palm.

In the single female specimen that I have before me, an ova-bearing individual, the cephalothorax is but $11^1/_2$ mm. broad. As in the males the right chelipede (fig. 1^d) is a little larger than the left. The chelae resemble the smaller hand of the male, but they are somewhat granular. Both hands have the upper margin of the palm distinctly flattened and separated from the outer surface by a granulated edge. The outer surface of the palm is somewhat granular near the articulation with the wrist, especially that of the smaller hand, and in both hands the furrowed fingers are somewhat granulated at their base.

The ambulatory legs resemble those of the Mergui species, but the terminal joints are slightly longer than the propodites.

I give the measurements of four male specimens:

	millimetres.			
	1.	2.	3.	4.
Length of the cephalothorax	14½	14¼	13½	11¾
Breadth of the cephalothorax (distance between the third antero-lateral teeth)	19½	19⅓	18½	15¾
Distance between the internal orbital angles	6	5½	5½	4¾
Length of the larger hand (fingers included)	16	19	15½	15
Length of the palm	9½	11½	10	9
Height of the palm near the articulation with the fingers	8	9¾	8	7¼

Heterop. Vauquelini Aud., of which a male specimen from the Red Sea lies before me, may be distinguished from *Heterop. tridentata* by the following characters: the front is somewhat broader, the distance between the internal orbital angles being somewhat broader than a third of the width of the cephalothorax; it is rather deeply emarginate on each side of the small triangular median incision, and, consequently, the front consists of two prominent, broad and rounded internal and of two external lobes, the latter being much smaller, dentiform and projecting much less forward i. e. downward. The protogastric and mesogastric regions are not marked with transverse ridges, as in *Heterop. tridentata*, but they are smooth, and no granulated crests are seen in this species on the frontal lobes, immediately behind their anterior margin, so that in *Heterop. Vauquelini* the front does not appear bimarginate. The upper margin of the arm of the larger chelipede of the male terminates into an acute tooth. The upper margin of the palm of the larger chela of the male is simply obtuse, not flattened as in the dutch species;

the fingers of the larger hand, finally, are not compressed laterally and their outer surface appears rather convex.

A different species also is *Heteropanope serratifrons* Kinahan which is identical with *Pilumnopeus crassimanus* A. M. E. In this species, which inhabits the Pacific Ocean, the front is also a little broader than that of *Heteropanope tridentata*, and the second antero-lateral lobe of the cephalothorax is considerably longer than the first, whereas in the dutch species the first lobe appears still a little longer than the second. The upper margin of the arm of the larger chelipede of the male ends into an acute tooth, as in *Heterop. Vauquelini*, and the larger hand, finally, presents a somewhat different form (confer de Man, in: Notes from the Leyden Museum, Vol. XII, p. 56; pl. 3, fig. 2).

6. *Geotelphusa picta* v. Mart.

(Fig. 2).

Telphusa picta, von Martens, Ueber einige neue Crustaceen; in: Monatsberichte der kön. preuss. Akad. d. Wissenschaften zu Berlin, Nov. 1868, S. 611.

I refer to this species, which was first observed in the lake Bato, Isle of Luzon, Philippines, some specimens in the Leyden Museum, viz. two female individuals collected by Kuhl and van Hasselt in the island of Java, and seven specimens (3 ♂, 4 ♀) of somewhat smaller size, of which the locality is unknown. I at first believed them to represent a new species for which I proposed the name of *modesta*, but I sent a male specimen to Dr. Hilgendorf in Berlin, who thereupon informed me that in his opinion this species most probably ought to be referred to *Telphusa picta* v. Mart. 1).

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1) As the quoted description given by von Martens is not clear enough, Dr. Hilgendorf wrote me the following about it: »Länge des Cephalothorax nur 24 (statt 25) mm., Breite 32 mm. (statt 33); der Seitenrand ist vor und hinter

I sent to Dr. Hilgendorf a male, the cephalothorax of which is 37 mm. broad; the abdomen and the smaller hand of this specimen have been figured (fig. 2^c and 2^e); moreover I sent him a detached larger hand of a male, which has been figured in fig. 2^d.

The cephalothorax (fig. 2), closely resembling that of *Telphusa Goudoti* A. M. E. from Madagascar, is rather much enlarged, the proportion of its breadth to the length (the abdomen excluded) being in the adult female from Java as 43 : 30, so that it is almost once and a half as broad as long. The upper surface of the rather thick cephalothorax is strongly convex longitudinally and also somewhat declivous towards the lateral margins. The cervical suture is represented by the usual H-like impression on the posterior half of the upper surface, that separates the gastric from the cardiac region and by two oblique longitudinal impressions on the anterior part, one on each side, separating the gastric from the anterior branchial regions; the last-named grooves are not continuous with and therefore do not pass into the median H-like impression, so that the cervical suture may be said to be interrupted on each side of the posterior half of the gastric region. At a short distance from and just above the insertion of the last pair of legs, a transverse, slightly arcuate impression is found on each side of the posterior part of the upper surface; these transverse grooves separate the intestinal from the posterior branchial regions. The interregional grooves are often less distinctly indicated and shallower in younger individuals. The branchial regions are much inflated,

dem Zahne glatt (nur der Zahnkerb selbst und die Runzeln stören die Linie), von Martens sagt: „sehr fein gekerbt" (soll vielleicht der Zahnkerb sein). Drittletztes Abdominalsegment des Männchens ist kaum länger als breit (an der schmalsten Stelle 3 mm. breit, hinten und vorn 3¼; nirgends länger als 3½). Die Scheeren sind bei ♂ und ♀ recht ungleich (Höhe ♀ 8 : 11½, ♂ 6 : 9¾); klaffen beim (kleineren) Männchen schon. Am Carpus ist der hintere (nicht vordere) Zahn kleiner, also wie gewöhnlich bei *Telphusa*."

not only the anterior, but also the posterior, the latter being also convex. The postfrontal crest is as little developed as in *Telphusa Goudoti* and only represented by two slight and low elevations, situated behind the front and separated from one another, as usually, by the median frontal furrow; they are often slightly erose.

The front is very narrow, its anterior margin measuring in adult individuals only a fifth of the greatest width of the cephalothorax, in younger individuals it measures a fourth of it. As the cephalothorax is very convex from behind towards the front, this latter appears likewise much inclined. The anterior margin of the front appears slightly emarginate in the middle, when the cephalothoran is seen from above, but, in fact, the median part of the anterior margin is directed downwards and backwards, and united with the epistome. The anterior margin of the front forms with the upper margin of the orbits very obtuse, rounded angles (fig. 2a). The orbits are nearly circular, as they are very little broader than high; the anterior margin of the front is about once and a half as broad as the breadth of the orbits. The anterior frontal margin and the margins of the orbits, the upper as well as the lower, are perfectly smooth. The external angle of the orbits is obtuse, not at all prominent, and therefore not tooth-like; there is no hiatus or emargination between the external angle and the lower margin of the orbits, the lower margin passing continually, without any interruption, into the upper one at the external angle. The epibranchial tooth is small, obtuse and situated as far distant from the external orbital angle as in *Telphusa Goudoti*. The antero-lateral margins are slightly serrate and smooth, never crenulate; the postero-lateral, which are not concave, are covered with many oblique wrinkles passing forwards and downwards on to the inflected portion of the carapace. The upper surface of the cephalothorax is perfectly smooth and has nowhere a trace of granulation; it is however minutely punctate, the punctulation of the intestinal region being often more crowded than that of the rest of the upper surface. The pterygostomian regions are a little rugose.

Dr. Hilgendorf believed that the posterior margin of the cephalothorax was somewhat less broad in our specimens than in *Telphusa picta.* He wrote me on this character the following: »Als Unterschied Ihres Exemplares gegenüber *picta* ist, ausser der Farbe (ich habe aber andere Exemplare von Luzon, die auch ungefleckt sind), die Schmalheit des Hinterrandes vom Cephalothorax bemerkenswerth; dieser (oder die gleichgrosse Breite des anliegenden Abdominalsegmentes) ist bei Ihrem Exemplare $2^1/_3$—$2^1/_2$ Mal in der Breite des Cephalothorax enthalten, bei *picta* (grosses ♀) kaum zweimal, bei dem Männchen allerdings $2^1/_5$ Mal. Wahrscheinlich ändert sich dies mit dem Alter, wie es bei der Verlängerung der Scheerenfinger sicher zu sein scheint. Danach würden die bei Ihrem Exemplare sehr langen Finger (fig. 2^d) (Index fast genau = Unterrand der Hand, bei unserem, nur 22 mm. breiten, Männchen 8 : 12 mm.) noch keinen specifischen Unterschied bedingen."

The impressed line on the ischium-joint of the outer foot-jaws (fig. 2^b) runs not far from the internal margin of the joint, and not in the middle of it; this joint is coarsely punctate, but the merus-joint is almost smooth. The abdomen of the male (fig. 2^c) resembles in general form that of *Paratelphusa spinigera* Wood-Mas.; the penultimate joint is nearly as long as broad and its lateral margins are slightly concave, immediately behind the middle; the terminal joint is scarcely longer than broad at its base and rounded at the tip. The outer surface of sternum and abdomen is distinctly punctate.

The chelipedes of the male are very unequal. The arms do not project as much beyond the lateral margins of the cephalothorax as in *Telphusa Goudoti*; their upper and their anterior margins are granular and a few transverse, minutely granulated lines are observed on their outer surface. The upper surface of the wrist is a little rugose towards the external and internal margins; the internal margin is armed with a strong acute tooth, below which there is a much smaller one. The larger hand (fig. 2d) closely resembles that of *Telphusa obesa* A. M. E., a species which inhabits Zanzibar and the opposite coast of Africa (Nouv. Archives du Muséum, tome IV, pl. 20, fig. 3). The outer surface of the palm appears minutely punctate, but for the rest quite smooth and shining to the naked eye; under a strong magnifying-glass an extremely fine and minute granulation is however observed, with which the palm is covered. The palm is almost as long as high at the base of the fingers; its upper margin is rounded and the under margin also rounded and convex. The fingers, that, measured horizontally, appear nearly once and a half as long as the palm, are widely gaping, almost as much as those of the larger hand of *Telphusa obesa*. Like the palm, they are minutely punctate, and being smooth to the naked eye, they in fact seem to be minutely granular, when examined under a strong magnifying-glass. The index, forming a concave line with the lower margin of the palm, presents a strong tooth at a short distance from its base, preceded by three very small ones; a smaller tooth stands on the middle of the finger and between this tooth and the tip still nine or ten very small teeth are observed. The strongly arcuate mobile finger is armed with a strong tooth a little before the middle, standing somewhat beyond the principal tooth of the index; a much smaller tooth is seen near the base, and between the tip of the finger and the strong tooth in the middle, still eleven or twelve very small teeth are observed.

The fingers of the smaller hand (fig. 2e), when closed, meet together along their whole length; they are also nearly once and a half as long as the palm. Both fingers are feebly toothed; on the lower about twenty small teeth are found, two or three of which near the base are slightly larger than the others; the teeth of the upper finger are somewhat smaller than those of the index.

The hands of the female (fig. 2^f) are likewise a little unequal and resemble the smaller hand of the male, their fingers meeting together along their whole length. In the larger hand the palm is almost as long as the fingers, but those of the smaller hand (fig. 2^f) are distinctly longer than the palm; as regards their denticulation, the fingers nearly agree with those of the smaller hand of the male.

The ambulatory legs are similar to those of *Telphusa Goudoti.* Dr. Hilgendorf wrote me the following about the meropodite of the last pair: »Der Schenkel des letzten Fusspaares ist bei Ihrem Exemplare länger (= Stirn + 1 Orbita), bei unserem kürzer (kaum Stirn + $^1/_2$ Orbita), aber auch dieser Körpertheil könnte bei älteren Exemplaren mehr gestreckt sein.”

Measurements of three specimens, the larger female being that of Java: millimetres.

	♂ 1)	♀	♀
Length of the cephalothorax (abdomen excluded)	$26^1/_2$	30	$19^2/_3$
Distance between the external orbital angles	$21^1/_4$	$23^1/_2$	17
Greatest breadth of the cephalothorax.	$38^1/_4$	$43^1/_4$	$28^1/_2$
Breadth of the anterior margin of the front.	$8^2/_3$	$9^1/_3$	7
Distance between the epibranchial tooth and the external orbital angle	$3^1/_3$	4	$2^1/_2$
Length of the larger hand	35	29	
Height » » » »	17	$11^3/_4$	

As I already observed, *Telphusa Goudoti* M. E. is most

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1) The male measured had lost its larger hand; I give the dimensions of a larger hand found free in the bottle.

closely allied 1). This species, however, which I examined in Paris, may be distinguished from *Telphusa picta* by the following characters. In *Telphusa Goudoti* the lower margin of the orbits is crenulate and separated from the external orbital angle by a hiatus or emargination. The orbits are less circular and comparatively a little broader. The front is also a little broader. The impressed line on the ischium-joint of the external maxillipedes runs closer to the middle of the joint. The antero-lateral margins of the cephalothorax are a little longer and more prominent, the postero-lateral are slightly concave. The abdomen of the male has a somewhat different form. The larger hand of the male, finally, is also different, the fingers being much less gaping.

I add the measurements of two type-specimens of *Telphusa Goudoti*, preserved in the Paris Museum: millimetres.

	♂	♂
Length of the cephalothorax.	32½	29¼
Distance between the external orbital angles.	30½	27½
Greatest width of the cephalothorax . . .	46	41½
Breadth of the front	10	9

Geotelphusa transversa v. Mart., identical with *Geotelphusa crassa* A. M. E., differs, according to a communication by Dr. Hilgendorf, by the following characters: the branchial regions are much more convex in *Geot. picta*, which is distinctly observed in a lateral view of the cephalothorax by the curvation of the antero-lateral margins. The median lobe of the epistome has a more triangular and not semicircular form. In the male the fingers are gaping, which is not the case in *Telphusa transversa.* The penultimate segment of the male abdomen is almost exactly quadrate. The impressed points on the cephalothorax are less deep and more distant from one another

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1) *Telphusa Cumingii* Miers (Report on the Zoolog. Collections made in the indopacific Ocean during the Voyage of H. M. S. „Alert", 1884, p. 236) from the Philippines, is quite imperfectly characterized, so that it is impossible to recognize this species, which may be allied to *Geotelphusa picta.*

than those of *transversa*, and the median frontal furrow is more distinct.

Telphusa angustifrons A. M. E., inhabiting Cape York together with *Telphusa transversa*, is also closely allied. In *Telphusa angustifrons*, indeed, there is also no hiatus or emargination between the lower margin of the orbits and their external angle, and the impressed line on the ischium-joint of the outer foot-jaws is situated as close to the internal margin of the joint as in *Geotelphusa picta*, but *Telphusa angustifrons* may, at first sight, be recognized by its less enlarged cephalothorax. The measurements of a type-specimen of *Telphusa angustifrons* in the Paris Museum are the following:

	♀
Length of the cephalothorax	$16^{1}/_{2}$ mm.
Distance between the external orbital angles.	$13^{2}/_{3}$ »
Greatest width of the cephalothorax	$20^{1}/_{2}$ »
Breadth of the front	$4^{1}/_{2}$ »

7. *Geotelphusa transversa* v. Mart.

Thelphusa transversa, v. Martens, Ueber einige neue Crustaceen, in: Monatsbericht der kön. preuss. Akad. d. Wissenschaften zu Berlin, Nov. 1868, S. 609.

Telphusa crassa, A Milne Edwards, Nouvelles Archives du Muséum, T. V., p. 177, pl. IX, fig. 2 1).

I refer to this species two young specimens (♂, ♀) collected on the Fidji Islands and purchased from the Museum Godeffroy.

One of these specimens I sent to Dr. Hilgendorf, who kindly informed me that it agrees quite well with the type-specimen of *Telph. transversa*, but that the chelipedes

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1) If these two species are really identical, the name given by von Martens should have the priority. For, though Milne Edwards' paper was presented to the „Société entomologique de France" in June 1868, the name *crassa* appears no sooner than in the Zoological Record for 1869, whereas *Telphusa transversa* is already recorded in that for 1868, and von Martens himself was at that time the recorder.

are still of equal size and that the cephalothorax is not yet as much convex.

The cephalothorax of *Geotelphusa crassa*, the type-specimens of which I examined in Paris, is in adult individuals about once and a half as broad as long, but in the younger it appears comparatively longer. The upper surface is a little convex from behind forwards, somewhat more in the adult than in the young, though not in such a degree as in *Geot. picta* v. Mart., and also somewhat convex transversely. The upper surface is punctate, but for the rest quite smooth; the points are somewhat coarser on the gastric region, finer and less numerous on the rest of the upper surface. The cervical suture, interrupted as in *Geot. picta* on each side of the posterior part of the gastric region, is rather shallow. The two slightly erose, postfrontal elevations, situated behind the front and separated from one another, as usually, by the median frontal furrow, are scarcely distinct; other traces of the postfrontal crest are completely wanting. The front, as far as it is visible when the carapace is looked at from above, is bordered anteriorly by a straight or a little concave, slightly cristate margin, which passes with very obtuse and rounded angles into the upper margin of the orbits; that slightly cristate margin forms the anterior margin of the front. The anterior part of the front, however, lying before the said margin, is deflexed downwards and backwards, and united with the epistome, as in the preceding species. The orbits are transverse and a little broader than long, the proportion of their breadth to their height being as $3 : 2^1/_3$. The anterior frontal margin and the upper margin of the orbits are perfectly smooth, but the arcuate lower margin, which passes directly into the upper without a hiatus or interruption at the external angle, appears very finely crenulate. The external angle of the orbits is little prominent, not tooth-like. The lateral margins of the cephalothorax are arcuate. The antero-lateral ones, being long and extending until a little before the transverse gastrocardiac suture, are cristate and minutely denticulate; they present at some distance from the external angles of the orbits a very small epibranchial tooth, which is however often only indicated by a triangular and small incision of the margin. The antero-lateral regions of the upper surface of the carapace are perfectly smooth, presenting no wrinkles at all. The postero-lateral margins, straight or a little convex and scarcely longer than the antero-lateral ones, are covered with some rather long, oblique wrinkles, which, as ordinarily, pass forwards and downwards on the inflected portions of the carapace, and the pterygostomian regions are also wrinkled.

The impressed line on the punctate ischium-joint of the outer foot-jaws lies not far from the internal margin and not in the middle of the joint. Sternum and abdomen are very finely, and not closely punctate. The lateral margins of the abdomen of the male are a little concave. The penultimate joint is broader than long, and in the middle of its length it is just once and a half as broad as long; its lateral margins are very slightly concave. The terminal joint is somewhat shorter than the breadth of its posterior margin and nearly as long as the penultimate joint.

According to Milne Edwards' description, the anterior legs of the male should be unequal and strong; they are also unequal in the type-specimen of *transversa.* Unfortunately I have not noticed how they are in the adult male which I examined in Paris, but on the quoted figure in the »Nouvelles Archives" they appear rather feeble and equal. I think that it represents the female or that the figure is not correct. In our young male from Fidji they are still equal and feeble. The fingers, which are somewhat longer than the palm, meet almost completely together, when closed, and are in our specimen longitudinally grooved: two grooves are observed on the outer side of the mobile finger, one or two also on the index. The carpus, the upper surface of which is somewhat granular, is armed with a strong tooth at the inner angle, below which there is still a smaller one.

The ambulatory legs are rather short.

I give the measurements of two type-specimens of *Geot. crassa* A. M. E. from the Paris Museum, collected at Cape York, and of our two younger individuals from the Fidji Islands:

	millimetres.			
	1.	2.	3.	4.
	♂ 1)	♀	♂	♀
Length of the cephalothorax (abdomen excluded)	$20^2/_3$	$16^1/_4$	13	13
Distance between the external orbital angles	$17^2/_3$	$14^1/_4$	11	$11^1/_4$
Greatest breadth of the cephalothorax	$30^1/_3$	$22^1/_2$	$16^2/_5$	17
Breadth of the anterior frontal margin	6	$4^1/_2$	$4^1/_4$	$4^1/_3$

The differences between *Geot. transversa* and *Geot. picta* have already been enumerated by me on page 240. Finally may be added the following remarks on the original description of *Geot. transversa* by von Martens made by Dr. Hilgendorf after an examination of the type-specimen and which he afterwards communicated to me. The cephalothorax of the male is only 25 mm. long (not 26 mm.) and $31^1/_2$ mm. broad (instead of 32). Besides the punctulation of the carapace, Hilgendorf observes a very minute, somewhat irregular granulation. The frontal margin presents in the male specimen no trace of emargination. The external orbital angle may hardly be said to be dentiform. The lateral margins of the penultimate segment of the abdomen of the male are not quite parallel, though they are much less convergent than those of the other segments.

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1) The cephalothorax of the male type from Cape York in the Paris Museum Collection is broken, so that the given measurements of the length and of the greatest width are probably not quite exact.

The larger hand of the male is $20^1/_2$ mm. long above, but 22 mm. below, the chela of the female 15 mm. above. Behind the third maxillipedes and close to them, the sternum presents a transverse groove.

Dr. Hilgendorf finally adds that in a younger male specimen from Port Mackay, only 20 mm. broad, the two anterior legs are still nearly equal and that the transverse groove on the sternum is still wanting.

8. *Geotelphusa loxophthalma*, n. sp.[1]

(Fig. 3).

One single male specimen, collected by Schwaner at the island of Borneo and presented to the Leyden Museum in 1846.

This interesting new species, which has no postfrontal ridge and which therefore ought to be referred to the subgenus *Geotelphusa*, may at first sight be recognized by the oblique direction of its small orbits, by the narrow front and by the enlarged carapace.

The cephalothorax is much enlarged and exactly once and a half as broad as long. It is somewhat convex from behind forwards, especially anteriorly, whereas it is more flattened posteriorly. As in *Geot. picta*, the cervical suture is interrupted on each side of the posterior part of the gastric region; the median H-like impression is rather shallow, but the oblique anterior furrows, separating the gastric from the anterior branchial regions, are deeper. A postfrontal crest may be considered to want in this species, for it is only represented by the two very low, somewhat erose elevations, which are situated behind the front and separated, as usually, from one another by the median frontal furrow. The front is very narrow and the orbits are small, so that the distance between the external orbital angles is not quite half as long as the greatest width of the cephalothorax. The anterior margin of the front, measuring scarcely a fifth of the greatest breadth of the cephalothorax, forms very oblique, obtuse and rounded angles with the upper margin of the orbits; the anterior margin is, as in *Geot. picta*, deflexed downwards and backwards in the middle, uniting itself with the epistome.

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[1] λοξός, oblique.

Highly characteristic of this species are the orbits. In *Geot. picta*, like in most other species of *Telphusa*, the imaginary line uniting the external orbital angles with one another coincides with the anterior margin of the front, so that the orbits show a transverse direction, their external angle being placed at the same level as the anterior margin of the front. In *Geot. loxophthalma*, however, the orbits appear to be directed (fig. 3a) very obliquely and their external angles to be situated below the anterior frontal margin, when the carapace is looked at from the front, so that the imaginary line which unites the external orbital angles, does not coincide with, but lies below the anterior margin of the front. The orbits are small and longer than high, the proportion of their length to their height being as 5 : 3. The upper orbital margin is a little sinuous, the lower arcuate, and both pass directly into one another, without any interruption or hiatus, at the external angle, that is little prominent and not toothlike. When the carapace is looked at from above, the external angles of the orbits appear however to project a little more forwards than the anterior margin of the front, which is not the case in *Geot. picta.* The anterior margin of the front and the margins of the orbits are quite smooth, not crenulate. At some distance from the external orbital angle, the antero-lateral margin of the cephalothorax presents a very small emargination, but an epibranchial tooth may not be said to exist. The strongly arcuate, antero-lateral margins of the cephalothorax are distinctly indicated, though they are not cristate;

they are a little erose, but not granulate or denticulate at all. The postero-lateral margins are slightly concave. The upper surface of the carapace is finely punctulate, somewhat coarser on the front and on the cardiac and intestinal regions. Near the postero-lateral margins many oblique wrinkles are observed, as usually, that pass forwards and downwards to the inflected portions of the cephalothorax; the latter are therefore covered with numerous oblique wrinkles and the pterygostomian regions are also a little rugose. The oblique wrinkles pass also in this species from the postero- to the antero-lateral margins (fig. 3) and, becoming gradually smaller and shorter, may be seen until near the external orbital angles; small punctulations are found in front of all these wrinkles, so that the upper surface of the cephalothorax appears also closer and more coarsely punctulate near the antero-lateral margins than on the gastric region.

The impressed line on the punctulate ischium-joint of the outer foot-jaws (fig. 3b) runs close to the internal margin of the joint and not in the middle of it.

The male abdomen (fig. 3c) somewhat resembles that of *Geot. picta*, but the penultimate joint is distinctly a little longer than broad at its anterior or posterior margin and it is somewhat constricted in the middle, so that the lateral margins are concave; the terminal joint is a little longer than the penultimate, once and a half as long as its posterior margin, the lateral margins are slightly concave and the tip is rounded. Sternum and abdomen are rather coarsely punctate.

The anterior legs of the male are unequal in form and size, the larger being found on the right side. The arms do not project as far beyond the lateral margins of the cephalothorax as those of *Geot. Goudoti.* The upper surface of the wrist, armed at its internal angle with a short, though acute tooth, is slightly rugose and erose. The larger hand (fig. 3d) is scarcely twice as long as high and the fingers are but little longer than the palm; the latter is almost as long as high. Its outer surface and rounded upper and lower margins are very slightly rugose and erose and these small rugosities are even visible to the naked eye, especially towards the upper and lower margins and towards the articulation with the palm. The compressed fingers, leaving a small interspace between them, when closed, present a few longitudinal rows of small puncta on their outer surface and the latter appears even minutely granulate when examined under a strong magnifying-glass. The index presents fifteen or sixteen small teeth, of which two on the middle are a little larger, and similar teeth are observed on the mobile finger. The fingers of the smaller hand (fig. 3^b), meeting together when closed, are about once and a half as long as the palm; as regards its denticulation and the structure of the outer surface, the smaller hand resembles the other.

The ambulatory legs are slender, especially the meropodites.

Measurements:	♂	
Length of the cephalothorax (abdomen excluded)	23	mm.
Distance between the external orbital angles	$16^2/_3$	»
Greatest breadth of the cephalothorax	35	»
Breadth of the anterior frontal margin	7	»

9. *Sesarma Eydouxi* M. E.

Sesarma Eydouxi, Milne Edwards, in: Annales Sciences Naturelles, 3e Série, T. XX, 1853, p. 184.

I examined in Paris the type-specimen of this species, a male from Touranne, which presents the following measurements:

Distance between the external orbital angles	$31^1/_4$	mm.
Length of the cephalothorax	$26^1/_4$	»
Breadth of the upper margin of the front	$18^3/_4$	»
Breadth of the posterior margin of the cephalothorax	$13^1/_2$	»

Length of the meropodites of the last pair of legs	$16^1/_2$ mm.
Breadth of the meropodites of the last pair of legs	9 »

The lateral margins of the cephalothorax converge slightly backwards. The chelipedes are provided with a finely denticulate ridge on the upper margin of the palm, the outer surface of which is smooth. The meropodites of the ambulatory legs are much enlarged and the propodites are scarcely shorter than the dactylopodites.

10. *Sesarma recta* Randall.

(Fig. 4).

Sesarma recta, Randall, in: Journal of the Academy of Nat. Sciences of Philadelphia, Vol. VIII, Part 1, 1839, p. 123.

Seven specimens, three males and four females, two of which are provided with eggs, were collected in Surinam by Dr. H. ten Kate.

I refer them to *Ses. recta* Rand. — a species said to be found in Surinam — with some doubt however, because the literature on the other West-Indian Decapoda is only partly at my disposal.

This species belongs to that section of the genus, in which the lateral margins of the cephalothorax are entire, without an epibranchial tooth behind the external orbital angles and in which the hands of the male are not provided with pectinated ridges on the upper margin of the palm. It may at first sight be recognized by the singular enlargement of the mobile finger of the male at its base.

Sesarma recta presents a remarkable resemblance, as regards its general form and appearance, with *Ses. quadrata* Fabr. from which it differs at first sight by the absence of pectinated ridges on the hands of the male.

The cephalothorax has a quadrate form and appears but slightly broader than long. The distance between the external orbital angles is however distinctly longer than the length of the cephalothorax, but, as the lateral margins are slightly convergent backwards, the cephalothorax appears nevertheless posteriorly almost as broad as it is long. The proportion of the distance between the external orbital angles and the length of the carapace of the largest individual (♂) is as 6 : 5, in *Ses. quadrata* Fabr. however as 4 : 3, so that *Ses. recta* appears still very slightly longer in proportion to the distance between the external orbital angles than the other species. The upper surface is slightly convex longitudinally and also somewhat declivous towards the lateral and posterior margins. The usual interregional grooves are very well indicated and rather deep in the adult male. The upper surface is marked anteriorly with numerous transverse rugosities and wrinkles that are pubescent for a part, whereas the cardiac and intestinal regions are rather coarsely punctate; the declivous lateral parts of the branchial regions, finally, are provided with the usual oblique and piliferous elevated lines.

The front is slightly broader in proportion to the distance between the external orbital angles than that of *Ses. quadrata* and vertically deflexed. The upper margin is divided into four obtuse lobes by the three usual grooves which are rather deep; the two internal lobes are slightly broader than the external; they are not prominent, so that the inferior margin of the front is entirely visible when the cephalothorax is looked at from above. This somewhat prominent inferior margin presents a rather broad, though shallow emargination in the middle, on each side of which it is very slightly sinuous; the front is somewhat granular between its two margins.

The lateral margins of the cephalothorax, which are not parallel but somewhat convergent backwards, are a little concave posteriorly; they are entire, though I must remark that a slight trace of an epibranchial tooth is seen in the larger individuals a little behind the acute external orbital angles. The epistome is somewhat granular. The second joint of the outer foot-jaws is longitudinally furrowed in the middle and the third joint is oval. The lobe at the infero-internal angle of the orbits is small. The abdomen of the male (fig. 4^a) resembles that of *Ses. intermedia* de Haan (Fauna japon. Pl. XVI, fig. 5); the terminal joint is short, being a little broader at its base than it is long; the penultimate segment is not quite three times as broad at its posterior margin as it is long and has convex rounded lateral margins; the following segments gradually decrease in length. The terminal segment of the abdomen of the female is profoundly pushed into the preceding. Sternum and abdomen are a little punctate, but for the rest quite smooth.

The anterior legs of the largest male individual are little more than once and a half as long as the cephalothorax. The anterior margin of the arm, the outer surface of which is transversely rugose, is granulated, but for the rest unarmed; the upper margin is also unarmed, but the granulated infero-external margin is notched before its distal end, so that it terminates into a tooth before that incision. The wrist, granular and rugose above, is unarmed at its internal angle. The hands (fig. 4^b, 4^c) are stout, the fingers once and a half as long as the palm. The convex outer surface of the palm is finely granulated, the inner surface is also slightly granular, but bears no transverse crest or ridge of prominent granules; the upper surface of the palm is granular like the outer surface, but presents no pectinated ridges or crests. Highly characteristic are the fingers of the adult male. The mobile finger is namely extraordinarily enlarged along its proximal half, rather rapidly tapering about the middle towards the tip; the upper surface of the enlarged proximal part is somewhat flattened and everywhere granulated, and the granulation continues till near the tip of the finger. The inner margin, which is somewhat hairy on the dilated proximal part, is armed with a small tooth a little beyond the middle, with a second somewhat smaller one immediately before the tip and with two or three very small ones between the two larger.

The lower finger has not the ordinary conical shape as in most other species of the genus, but is very high (broad), broader than the mobile finger. Its outer surface is smooth, but the under margin and the inner surface are somewhat granular; this finger is slightly compressed laterally. Its inner margin is armed in the middle with a conical tooth, which is scarcely greater than the opposite largest tooth of the mobile finger, with a smaller conical tooth immediately before the tip and with three still smaller ones between them, of which the middle is a little larger than the two others.

In young males, the cephalothorax of which is only 10 mm. long, the upper finger appears still hardly dilated and the index presents still the usual conical form. The interesting characters of the fingers of the adult male are also wanting in the female and the upper finger appears only a little granular at its base.

The ambulatory legs resemble those of *Ses. quadrata* Fabr. The meropodites are somewhat granular or transversely rugose on their outer surface, the upper margin of which ends into a sharp tooth while the under margin is entire, as usual. They are considerably enlarged, so that e. g. those of the antepenultimate pair are half as broad as long. The two following joints are also stout and by no means slender, so that e. g. the propodites of the antepenultimate pair are a little more than twice as long as broad. The dactylopodites of all the legs are a little shorter than the propodites. The three last joints are somewhat hairy along their margins.

Randall's description agrees very well with the foregoing, I must, however, observe that he describes the anterior frontal margin as »profoundly excavated", the anterior legs of the male as being »at least twice the length of the body" and that his specimen was $1^2/_{10}$ inches long, thus almost twice as large as our adult male. I suppose, however, that the two named differences are to be ascribed to the much smaller size of our specimens.

Measurements of the two largest individuals:

	millimetres.	
	♂	♀
Distance between the external orbital angles	$19^1/_2$	$17^1/_4$
Length of the cephalothorax	$16^1/_4$	$14^3/_4$
Breadth of the front	12	$10^3/_4$
Breadth of the posterior margin	$7^3/_4$	8.

The two ova-bearing females are of a smaller size than the adult male, the cephalothorax of the larger one is 12 mm. long, that of the other only 10 mm.

11. *Sesarma angustipes* Dana.

(Fig. 5).

Sesarma angustipes, Dana, Unit. States Explor. Exped. Crustacea, p. 353, Pl. XXII, fig. 7. — Stimpson, Annals of the Lyceum of Natural History of New York, Vol. VII, 1862, p. 66. — Sidney J. Smith, Notes on American Crustacea, in: Trans. Connecticut Acad. Vol. II, 1870, p. 159.

Sesarma Ricordi, Milne Edwards, in: Annales Sciences Naturelles, T. XX, 1853, p. 183.

Two female specimens from St. Domingo.

These two specimens doubtless belong to *Sesarma Ricordi* M. E., as I found by comparing them in Paris with the original type-specimen, a male from the Antilles. I describe them, however, under the name of *Ses. angustipes*, because I believe that Dana's species is identical with *Ses. Ricordi*, as was already supposed by Stimpson. Dana figured a male. I must, however, remark that in his figure the ambulatory legs appear comparatively a little less slender than in our individuals, which is especially the case with the propodites and dactylopodites.

I now describe the larger female (fig. 5). The cephalothorax appears nearly quadrate; it is, however, a little broader than long and even the distance between the external orbital angles surpasses somewhat the length. Dana's male specimen, being of a somewhat larger size, presents the same proportions. The upper surface is slightly convex, it appears smooth to the naked eye, but is minutely punctate when seen under a lens. In the younger individual it bears some small tufts of hair anteriorly and on the branchial regions. The ordinary interregional furrows are well marked and the branchial regions are obliquely plicate as usual. The front is nearly perpendicular. The upper margin is divided by a tolerably deep median groove and slight lateral ones into four lobules, the two internal of which are a little broader than the external; the former are almost smooth, but the external appear finely granulate, when seen under a lens. The lateral margins of the front are somewhat divergent, so that the inferior margin, which is almost four times as broad as the height of the front, appears a little broader than the superior. The lower margin shows a slightly sinuous edge, with a small, shallow sinus in the middle and a very slight one on each side. The front is somewhat granulate.

The branchial regions are slightly swollen. The almost parallel lateral margins of the cephalothorax are entire and rather sharp; the posterior margin finally is a little less broad than the front and exactly half as broad as the distance between the external orbital angles. The terminal segment of the female abdomen is almost entirely pushed into the preceding.

The anterior margin of the arm of the chelipedes is unarmed, but minutely granulated, like the two other margins. The finely granulated wrist presents an acute, though unarmed inner angle. The fingers are distinctly longer than the palm. Both fingers and the palm are smooth externally, but the palm is somewhat granulate on the upper border and the mobile finger likewise at the base.

The ambulatory legs are long and slender, so that e. g. those of the penultimate pair are twice as long as the cephalothorax is broad. The meropodites, armed with an acute tooth at the distal end of their upper border, are three times as long as broad and somewhat transversely rugose on their outer surface. The slender propodites are still a little longer than the dactylopodites, that are also slender, slightly longitudinally sulcate, provided with some small tufts of hair and slightly curved towards the acute points. The propodites present also some small tufts of hair, but for the rest the ambulatory legs are nearly glabrous.

The measurements of these two specimens and of the male type-specimen of *Ses. Ricordi* in the Paris Museum are the following:

	millimetres.		
	1	2	3
	♀	♀	♂
Distance between the external orb. angles	$16^3/_4$	$11^1/_4$	$14^2/_3$
Greatest width of the cephalothorax. .	$17^3/_5$	$12^1/_2$	
Length of the cephalothorax	$16^1/_4$	10	$14^1/_4$
Breadth of the superior border of the front	9	6	$7^3/_4$
Breadth of the inferior margin of the front	$9^1/_2$	$6^1/_3$	$8^1/_2$
Length of the penultimate pair of legs	34	26	
Length of the meropodites of the penultimate pair of legs.	12	$9^1/_2$	$10^1/_2$
Breadth of the meropodites of the penultimate pair of legs.	$3^3/_4$	$3^1/_4$	$3^4/_5$

N⁰. 3 is the male type-specimen of *Ses. Ricordi* M. E. in the Paris Museum.

I moreover examined in Paris the single type-specimen of *Ses. Guerini* M. E., a female of which the locality is unknown and it appears to me highly probable that this species is identical with *Ses. Ricordi* = *angustipes* Dana.

This type-specimen of *Ses. Guerini* is of a somewhat larger size than that of *Ricordi*; the branchial regions are a little more inflated, but this difference may perhaps be ascribed to the larger size.

The measurements of the type-specimen of *Ses. Guerini* are the following:

	♀	
Distance between the external orbital angles . .	$20^1/_4$	mm.
Length of the cephalothorax	20	»
Breadth of the superior margin of the front . .	$11^1/_6$	»
» » » inferior » » » » . .	$11^3/_4$	»
Length of the meropodites of the last pair of legs .	$10^3/_4$	»
Breadth » » » » » » » » » .	4	»
Length » » » » » penultimate » .	14	»
Breadth » » » » » » » .	5	»

12. *Sesarma elongata* A. M. E.

Sesarma elongatum, A. Milne Edwards, in: Nouvelles Archives du Muséum, T. V, Bulletin p. 30. — de Man, Uebersicht der indopacifischen Arten der Gattung *Sesarma*, in: Zoolog. Jahrbücher von J. W. Spengel, Bd. II, 1887, S. 645.

As far as I am aware, *Sesarma elongata*, which inhabits the western-coast of Madagascar, is only known by the short description given by A. Milne Edwards in 1869, so that the following remarks may be of some interest. I examined in Paris the original specimen, a male, which presents the following measurements:

Distance between the external orbital angles . .	$33^1/_4$	mm.
Length of the cephalothorax	$34^1/_2$	»
Breadth of the front	19	»
Breadth of the posterior margin of the cephalothorax	$12^1/_4$	»
Length of the meropodites of the last pair of legs	$20^1/_2$	»
Breadth » » » » » » » » »	$11^1/_2$	»

Ses. elongata belongs to those species of the genus, in which the lateral margins of the cephalothorax are entire and in which the chelipedes of the male have no oblique pectinated ridges on the upper margin of the palm. It differs from the other species of this section of the genus by the following characters. The cephalothorax is slightly longer than broad and its upper surface, on which the interregional grooves are distinctly indicated, is much flattened. The lateral margins are nearly parallel, though slightly concave in the middle. The front, that is almost perpendicular, is a little broader than half the distance between the external orbital angles; its upper margin is divided by rather deep grooves into four lobes, of which the internal ones are a little broader than the external, and its inferior margin is widely and profoundly emarginate in the middle. The posterior margin of the cephalothorax is narrow.

The arm of the chelipedes has a denticulate tooth on its anterior margin and the wrist is unarmed, having no tooth at its inner angle. The outer surface of the hands is finely granulate, the inner surface presents a transverse row of little prominent granules. The palm is provided with a finely pectinated longitudinal crest as in *Ses. taeniolata*, and, as in this species, the mobile finger is marked on its upper margin with a longitudinal row of forty small transverse ridges.

The meropodites of the ambulatory legs are much enlarged, the propodites elongate and the dactylopodites considerably shorter than the propodites.

13. *Sesarma curaçaoensis*, n. sp.

(Fig. 6).

The Leyden Collection contains one male specimen, found by Mr. Neervoort van de Poll on the island of Curaçao. I describe it as a new species, with some doubt however, not only because this specimen may be a young one, not yet presenting the characters of the adult, but also because only a part of the literature on West-Indian Decapoda is at my disposal.

Ses. curaçaoensis, indeed, belongs to those species of the genus, in which the lateral margins of the cephalothorax are armed with an epibranchial tooth behind the external orbital angle and in which the hands of the male are not provided with pectinated ridges on the upper margin of the palm, to a section which is represented in the indopacific region by a number of species, whereas only two species of that section are known to me as inhabiting the American seas, viz. *Sesarma crassipes* Cano (1889) from Pernambuco and *Ses. sulcata* Smith (1870) from the western-coast of Nicaragua.

As in the last-named species, the cephalothorax is much broader than long, its greatest width (at the epibranchial teeth) being in proportion to the length as 5 : 4. The upper surface is somewhat convex longitudinally, and, as usual, declivous on the branchial regions. The interregional grooves are almost wanting, for only those bordering posteriorly the mesogastric and cardiac regions are represented by shallow depressions. The declivous branchial regions are traversed by the ordinary sharp, pubescent elevated lines, but for the rest the upper surface of the cephalothorax is smooth and even shining, though it appears distinctly punctate, even to the naked eye. Rather large impressed points indeed are found on the gastric and cardiac regions, especially on the protogastric lobes, but the whole upper surface appears moreover very finely punctate when seen under a magnifying glass and then also a few very small tufts of hairs are observed, distributed over the whole upper surface. The front is a little broader than half the width of the cephalothorax and very obliquely deflexed; the four postfrontal lobes, the internal of which are somewhat broader than the external, are very little prominent, so that the front is entirely visible when the cephalothorax is looked at from above; they are moreover only separated from one another by very slight grooves, of which the mesial frontal furrow is a little more distinct, bifurcating itself, as ordinarily, in order to border the anterior lobe of the mesogastric area. The external frontal lobes are limited next the orbits also only by slight depressions. The inferior edge of the smooth, though minutely punctate front, is interrupted in the middle by a broad but shallow emargination.

The lateral margins of the cephalothorax are armed with a prominent epibranchial tooth behind the external orbital angle, and this tooth projects laterally a little more outward than the external angle of the orbit, so that the cephalothorax presents its greatest width at the epibranchial teeth. Behind the second antero-lateral i. e. the epibranchial tooth, which is a little longer than the first tooth formed by the outer angle of the orbits, still a very slight trace of a second epibranchial tooth is seen, and behind it the lateral margins appear somewhat concave. The posterior margin, finally, is just half as broad as the width of the cephalothorax.

The lobe at the infero-internal angle of the orbits is very small. The second joint of the external maxillipedes is longitudinally grooved and the third joint oval, scarcely longer than broad. Abdomen and sternum are smooth, sparsely punctate. The former (fig. 6^a) is rather narrow; the terminal segment is exactly as long as its posterior margin is broad; the somewhat shorter, penultimate segment, the lateral margins of which are slightly convex, is just half as long as its posterior margin and the antepenultimate segment is scarcely shorter than the penultimate.

As regards the chelipedes of the male, I will remark that the outer surface of the arms is transversely rugose, that the upper margin is unarmed at its distal end and that the little prominent anterior margin, though somewhat granular, is also unarmed. The upper surface of the wrist is transversely rugose and unarmed at its internal angle. The fingers are scarcely longer than the palm. The convex outer surface of the palm is coarsely and irregularly punctate, but for the rest quite smooth, without a trace of granulation; its inner surface is somewhat granular near the articulation of the fingers, the arcuate inner margin of the upper part of the palm finally, between the articulation of the mobile finger and that of the carpus, is formed by a crest of small granules (fig. 6^b). The mobile finger is a little punctate at its base, for the rest quite smooth, and its upper margin presents a longitudinal row of seven or eight small acute teeth on its proximal half. The inner margin is armed with ten or twelve small teeth, of which one at the base, one in the middle and one at the end are a little larger. The index is conical, its outer surface convex and smooth, not at all punctate, like that of the mobile finger, and the under margin is also smooth; its inner margin is armed with several teeth of somewhat unequal size.

The ambulatory legs are stout. The meropodites are enlarged, so that e. g. those of the penultimate pair are only a little more than twice as long as broad (8¼ mm. long and 3½ mm. broad); these joints are transversely rugose on their outer surface, their upper margin ends into an acute tooth before the distal end and the lower margin is unarmed as usually. The propodites are also short, those of the penultimate pair e. g. are scarcely three times as long as broad and the dactylopodites of all the legs are a little shorter than the propodites. The three last joints are hairy on their margins.

Distance between the external orbital angles .	12¼	mm.
Greatest width of the cephalothorax	12½	»
Length of the cephalothorax	10	»
Breadth of the front between the orbits . .	7¼	»

Ses. sulcata Smith is, indeed, closely allied to our species, but the interregional grooves, especially on the anterior part of the cephalothorax, are described as deep and well marked sulci, from which this species has doubtless received its name, so that I suppose it to be a different form, though it may be possible that the absence of grooves in our individual from Curaçao must be ascribed to its small size, as the cephalothorax of *Ses. sulcata* attains to a breadth of 31 mm.

Ses. crassipes is probably likewise different, for the cephalothorax of this species seems to be a little less enlarged, the upper surface rugose, the frontal margin profoundly emarginate and the outer surface of the hands covered with very small scales („minutissime squame").

14. *Caridina japonica*, n. sp.

(Figs. 7 and 8).

Six specimens from Kagar, Hayagana, Japan.

These specimens, which were kindly presented to me with some other species from Japan by Dr. J. Anderson, are nearly all of the same size and 32 or 33 mm. long from the tip of the rostrum to the end of the telson. It is to *Caridina Weberi* de Man, from Celebes and Flores, that this species is most closely allied. The rostrum is small and closely resembles that of *Car. Weberi*; it is somewhat directed downwards and scarcely reaches to the middle of the penultimate joint of the upper antennae, sometimes even only to the distal end of the first joint. The upper margin is straight or very slightly concave and the point of the rostrum very acute; both margins are dentate. The formulae of these teeth for the six specimens are the following: $\frac{22}{18}$, $\frac{21}{11}$, $\frac{19}{13}$, $\frac{17}{10}$, $\frac{19}{6}$, $\frac{15}{5}$. The number of teeth on the upper margin therefore varies from 15—22, those of the lower margin from 10—18, when the two last specimens are considered as making an exception. The teeth of the upper margin are comparatively a little smaller than those of *Car. Weberi* and generally decrease somewhat in size towards the tip; like in that species all the teeth are standing on the rostrum itself, none of them on the cephalothorax, and the foremost tooth stands at a small distance from the tip. The teeth of the lower margin are smaller than those of the upper and mostly increase slightly in length anteriorly.

The cephalothorax is armed, as usual, with an acute antennal tooth and the fronto-lateral angle is rounded. The telson, which is somewhat shorter than the uropoda, presents on its upper surface six or seven pairs of small spinules and some others are found on its posterior margin. The peduncle of the upper antennae is a little shorter than the antennal scales and reaches as far forward as the spine on the lateral margin of the latter; the second joint is a little longer than the third and a little shorter than the first. The lateral spine on the basal joint does not reach to its anterior margin and the spinule into which terminates the lateral margin of the basal joint, measures scarcely a fourth of the length of the second joint. The peduncle of the outer antennae reaches nearly to the distal end of the penultimate joint of the peduncle of the upper antennae. The outer foot-jaws scarcely reach as far forward as the antennal scales.

The anterior legs reach as far forward as the rostrum and fully resemble those of *Car. typus* M. E. The wrist, which is scarcely shorter than the merus, has the same form as in *Car. typus*; it is conical, deeply excavated at its distal extremity and here nearly as broad as it is long (fig. 7). The hand is a little longer than the carpus, and the fingers, hairy at the ends as usually, are slightly longer than the palm. The legs of the second pair (fig. 7ª) are reaching to the middle of the terminal joint of the antennular peduncle. The carpus is twice as long as that of the first pair, slightly excavated at its distal end and about five times as long as it is broad at the distal end. The hand is almost as long as the wrist, and the fingers, hairy at their tips, are twice as long as the palm. The legs of the third pair extend a little beyond the antennal scales, the fourth reach beyond them with their dactylopodites and the fifth are scarcely shorter. The meropodites of the three posterior pairs of legs are armed with four (or five) small spinules. The dactylopodites of the third and fourth pair are similar to those of *Car. Weberi*; those of the third pair measure almost a third, those of the fourth pair a fourth and those of the fifth pair a fifth of the length of their propodites. The dactylopodites of the third and fourth pair are armed along their inner margins with four or five spinules which gradually increase in length, those of the fifth pair, also agreeing with those of *Car. Weberi*, are provided along their inner margin with 50—60 spinules, the five or six foremost of which slightly become thicker and are a little more than three times as long as broad at their base. This japanese *Caridina* is, consequently, most closely allied to *Car. Weberi* (fig. 8 and 8^a) and must, perhaps, even be regarded as a mere local variety of it, the principal difference being the more profoundly excavated carpus of the anterior legs.

Car. denticulata de Haan, however, that likewise inhabits Japan, is certainly a different species. The rostrum reaches to the end of the peduncle of the upper antennae, and the distal third of the upper margin is described as entire. De Haan says that the carpus of the anterior legs is similar to that of *Car. typus*, but in his figure the wrist of these legs appears longer and scarcely excavate, so that in my opinion this species presents a much greater resemblance to *Car. laevis* Heller from Java.

15. *Hippolyte ponapensis* Ortmann.

Hippolyte ponapensis, Ortmann, Die Decapoden-Krebse des Strassburger Museums, in: Zoolog. Jahrbücher, Abth. für System., Geogr. und Biologie der Thiere, Bd. V, 1890, S. 502; Taf. 36, fig. 20, 20*d*.

This species is certainly identical with *Hetairocaris orientalis* de Man (Notes from the Leyden Museum, Vol. XII, 1890, p. 122; pl. 6, fig. 16). Ortmann founded his species upon a male and a female from the Carolines, Ponapé: the two ova-bearing females described by me, were likewise collected at the isle of Ponapé. The paper in which I published my description, was issued at Leyden in April 1890, whereas Ortmann's paper was published six months afterwards, namely in October. My description has therefore the priority. Ortmann's specimens, as well as those described by me, were purchased from the Museum Godeffroy.

Middelburg, May 1892.

EXPLANATION OF PLATE 7—10.

Fig. 1. *Heteropanope tridentata* Maitland, adult male, × 2; 1*a* abdomen of the male, × 2; 1*b* larger, 1*c* smaller chela of the male, × 2; 1*d* larger chela of an ova-bearing female specimen, the cephalothorax of which is 11½ mm. broad, × 2.

„ 2. *Geotelphusa picta* v. Martens, adult female specimen from Java, collected by Kuhl and van Hasselt, × 1½; 2*a* cephalothorax of this specimen looked at from the frontside, × 1½; 2*b* outer foot-jaw of the same, × 1½; 2*f* smaller i. e. right chela of this adult female specimen, × 1½; 2*c* abdomen of a male from unknown locality, the cephalothorax of which is 37 mm. broad, × 1½; 2*e* smaller chela of this male specimen, × 1½; 2*d* larger hand of an adult male of which the locality is unknown, × 1½.

„ 3. *Geotelphusa loxophthalma* de Man, adult male from Borneo, × 1½; 3*a* cephalothorax looked at from the frontside, × 2; 3*b* outer foot-jaw, × 2; 3*c* abdomen, × 2; 3*d* larger, 3*e* smaller chela of the male, × 1½.

„ 4. *Sesarma recta* Randall, adult male from Surinam, × 1½; 4*a* abdomen of the male, × 2; 4*b* hand of the male, × 3; 4*c* the same viewed at from above, showing the remarkable enlargement of the mobile finger, × 3; 4*d* hand of a female specimen from the same locality, the cephalothorax of which is 14¾ mm. long, × 2.

„ 5. *Sesarma angustipes* Dana, adult female from St. Domingo, × 1½.

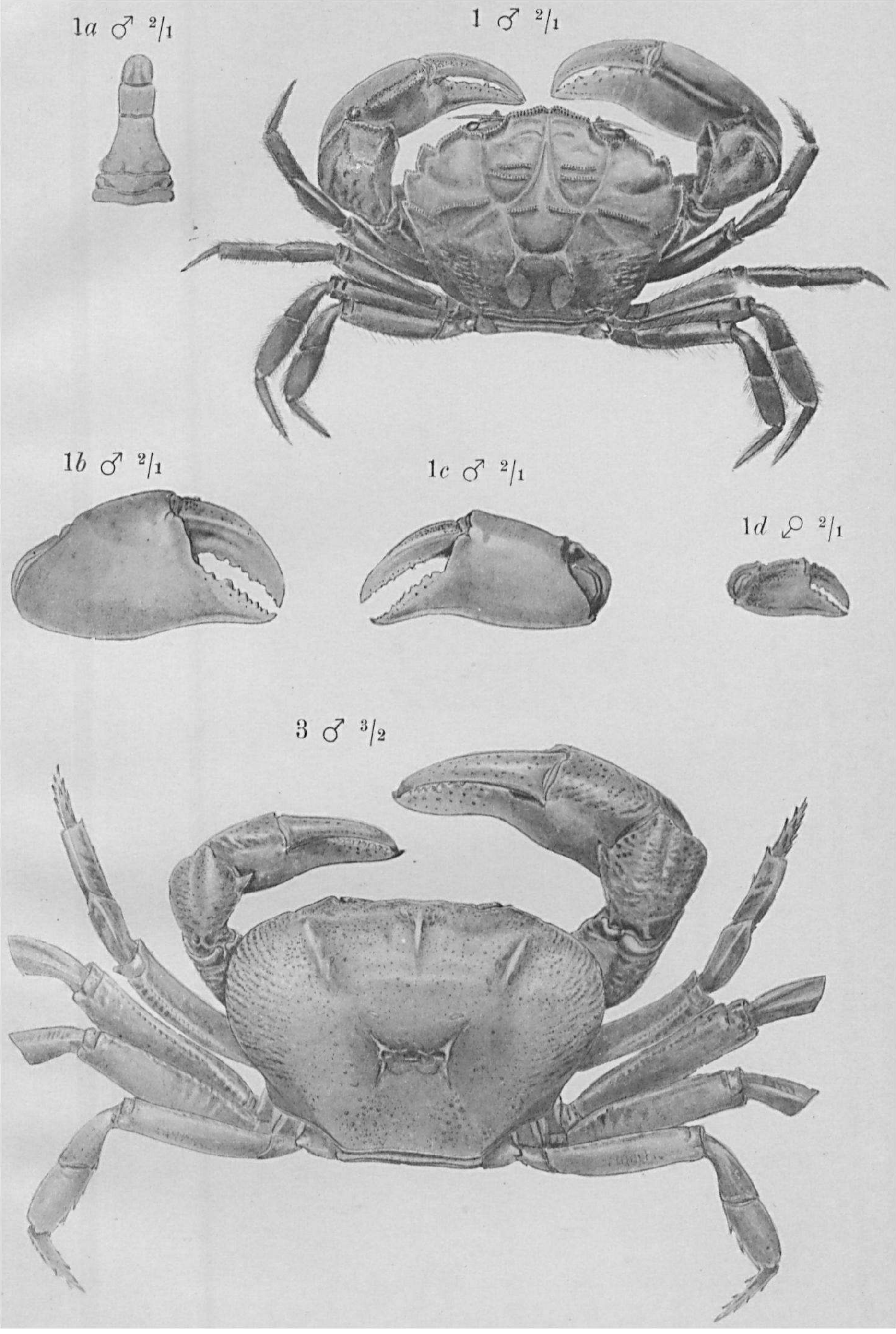
„ 6. *Sesarma curaçaoensis* de Man, n. sp., male individual from Curaçao, × 2; 6*a* abdomen of this male, × 2; 6*b* hand of the same individual, × 4.

„ 7. *Caridina japonica* de Man, n. sp., carpus and hand of the first pair of legs, × 12; 7*a* carpus and hand of the second pair of legs, × 8.

„ 8. *Caridina Weberi* de Man, carpus and hand of the first pair of legs of a specimen from Koting, Flores, × 12; 8*a* carpus and hand of the second pair of legs of the same individual, × 8.

N. L. M. 1892.

Plate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1 ♂ 2/1
1b ♂ 2/1
1c ♂ 2/1
1d ♀ 2/1
3 ♂ 3/2

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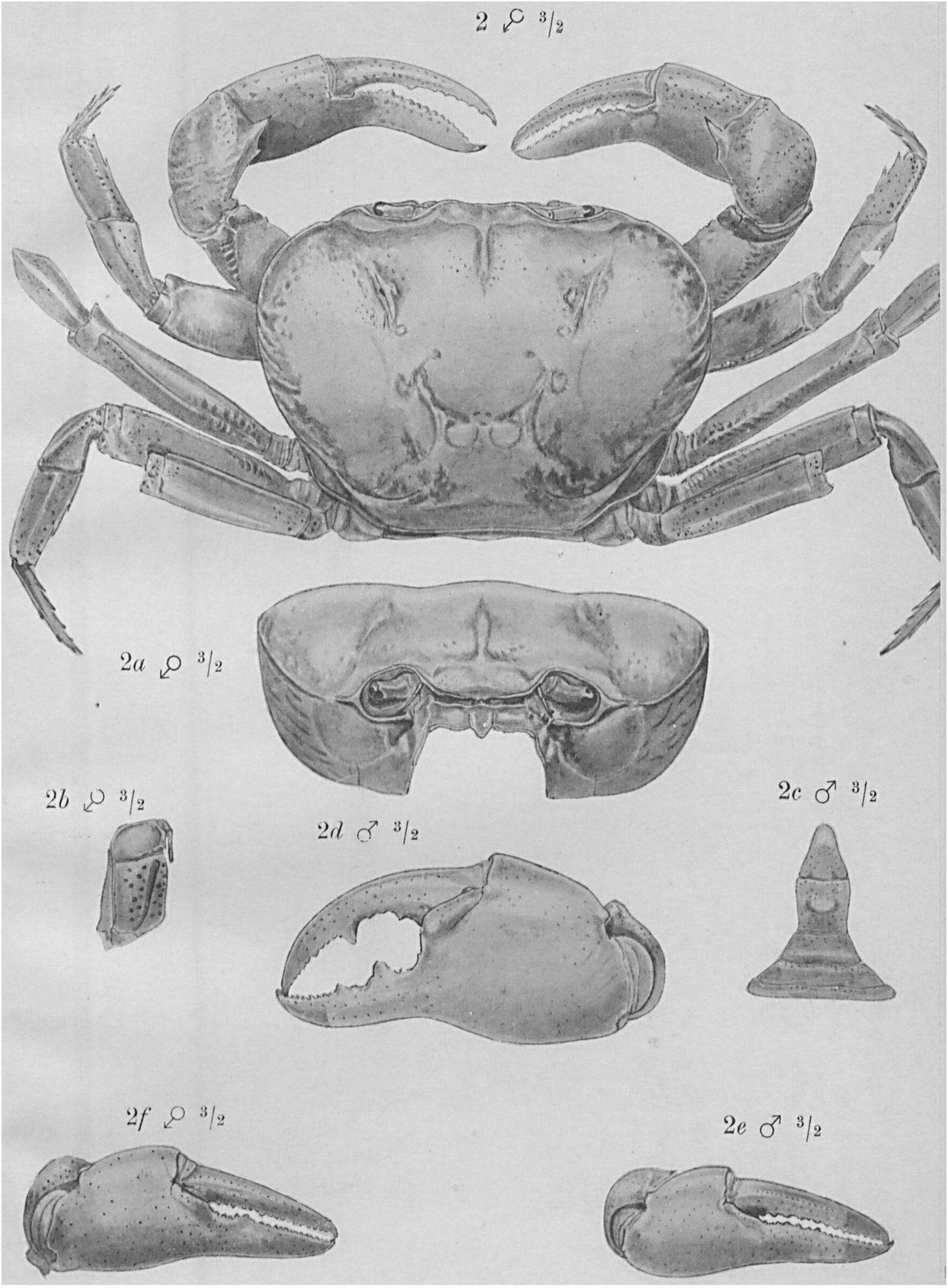
1. Heteropanope tridentata *Maitland.*
3. Geotelphusa loxophthalma *de Man.*


2 ♀ 3/2
2a ♀ 3/2
2b ♀ 3/2
2c ♂ 3/2
2d ♂ 3/2
2f ♀ 3/2
2e ♂ 3/2

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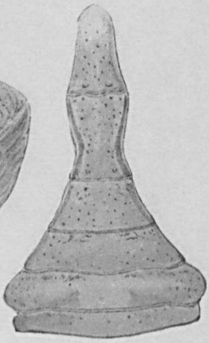
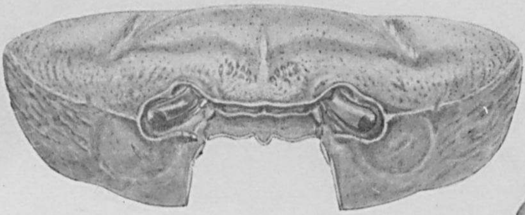
2. Geotelphusa pictor *v. Martens.*

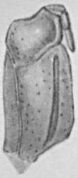
3c ♂ $^{2}/_{1}$



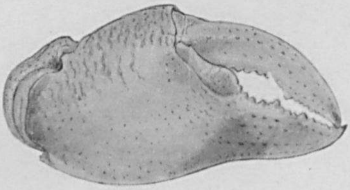
3a ♂ $^{2}/_{1}$



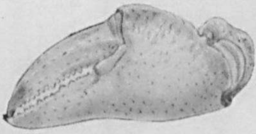
3b ♂ $^{2}/_{1}$



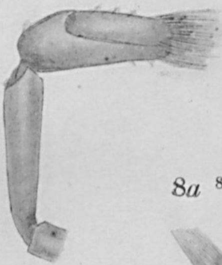
3d ♂ $^{3}/_{2}$



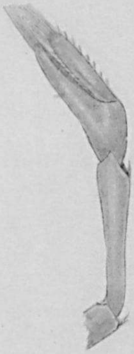
3e ♂ $^{3}/_{2}$



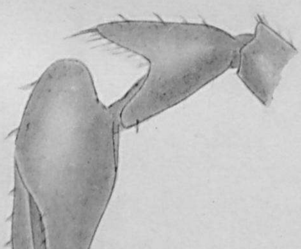
7a $^{8}/_{1}$



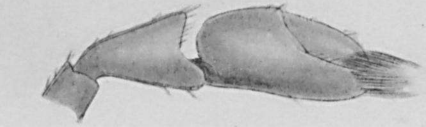
8a $^{8}/_{1}$



7 $^{12}/_{1}$



8 $^{12}/_{1}$



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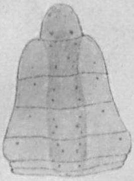
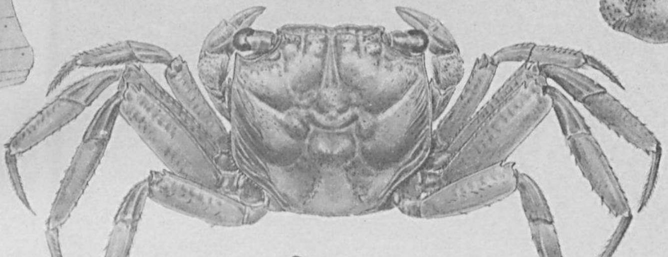
3. Geotelphusa loxophthalma *de Man.*
7. Caridina japonica *de Man.*
8. Caridina weberi *de Man.*

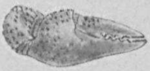
4a ♂ $^2/_1$



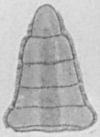
5 ♀ $^3/_2$



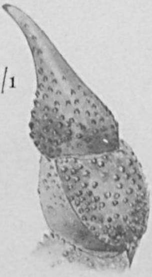
4d ♀ $^2/_1$



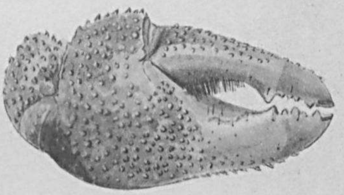
6a ♂ $^2/_1$



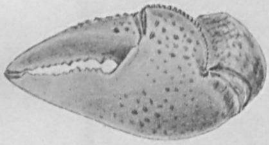
4c ♂ $^3/_1$



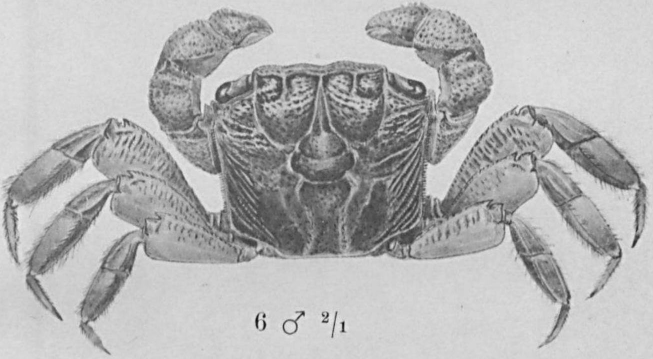
4b ♂ $^3/_1$



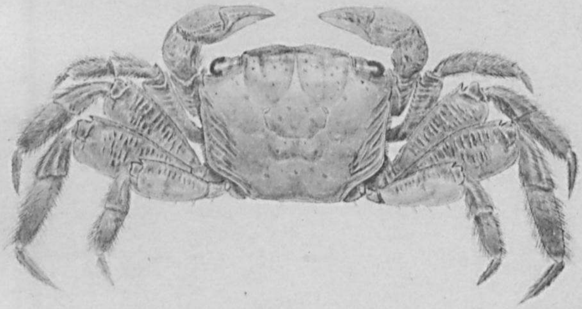
6b ♂ $^4/_1$



4 ♂ $^3/_2$



6 ♂ $^2/_1$



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4. Sesarma recta *Randall.*
5. Sesarma angustipes *Dana.*
6. Sesarma curacaensis *de Man.*